Agency for Healthcare Research and Quality
Advancing Excellence in Health Care

NATIONAL GUIDELINE CLEARINGHOUSE

General

Guideline Title

ACG clinical guideline: management of patients with acute lower gastrointestinal bleeding.

Bibliographic Source(s)

Strate LL, Gralnek IM. ACG clinical guideline: management of patients with acute lower gastrointestinal bleeding. Am J Gastroenterol. 2016 Apr;111(4):459-74. [140 references] PubMed

Guideline Status

This is the current release of the guideline.

This guideline meets NGC's 2013 (revised) inclusion criteria.

NEATS Assessment

National Guideline Clearinghouse (NGC) has assessed this guideline's adherence to standards of trustworthiness, derived from the Institute of Medicine's report Clinical Practice Guidelines We Can Trust.

= Poor = Fair = Good = Very Good = Excellent

Assessment	Standard of Trustworthiness
YES	Disclosure of Guideline Funding Source
	Disclosure and Management of Financial Conflict of Interests
	Guideline Development Group Composition
NO	Multidisciplinary Group
UNKNOWN	Methodologist Involvement
	Patient and Public Perspectives

	Use of a Systematic Review of Evidence
▮▮▮▮▯	Search Strategy
▮▮▮▯▯	Study Selection
▮▮▮▮▯	Synthesis of Evidence
	Evidence Foundations for and Rating Strength of Recommendations
▮▮▮▮▮	Grading the Quality or Strength of Evidence
▮▮▮▮▮	Benefits and Harms of Recommendations
▮▮▮▮▮	Evidence Summary Supporting Recommendations
▮▮▮▮▮	Rating the Strength of Recommendations
▮▮▮▮▮	Specific and Unambiguous Articulation of Recommendations
▮▯▯▯▯	External Review
▮▯▯▯▯	Updating

Recommendations

Major Recommendations

Definitions of the quality of evidence (high, moderate, low, and very low) and strength of recommendations (strong and conditional) are provided at the end of the "Major Recommendations" field.

Initial Assessment

Evaluation and Risk Stratification

> A focused history, physical examination, and laboratory evaluation should be obtained at the time of patient presentation to assess the severity of bleeding and its possible location and etiology. Initial patient assessment and hemodynamic resuscitation should be performed simultaneously (Strong recommendation, very-low-quality evidence).
> Hematochezia associated with hemodynamic instability may be indicative of an upper gastrointestinal bleeding (UGIB) source, and an upper endoscopy should be performed. A nasogastric aspirate/lavage may be used to assess a possible upper gastrointestinal (GI) source if suspicion of UGIB is moderate (Strong recommendation, low-quality evidence).
> Risk assessment and stratification should be performed to help distinguish patients at high and low risks of adverse outcomes and assist in patient triage including the timing of colonoscopy and the level of care (Conditional recommendation, low-quality evidence).

Hemodynamic Resuscitation

> Patients with hemodynamic instability and/or suspected ongoing bleeding should receive intravenous fluid resuscitation with the goal of normalization of blood pressure and heart rate prior to endoscopic evaluation/intervention (Strong recommendation, very-low-quality evidence).

Packed red blood cells should be transfused to maintain the hemoglobin above 7 g/dl. A threshold of 9 g/dl should be considered in patients with massive bleeding, significant comorbid illness (especially cardiovascular ischemia), or a possible delay in receiving therapeutic interventions (Conditional recommendations, low-quality evidence).

Management of Anticoagulant Medications

Endoscopic hemostasis may be considered in patients with an international normalized ratio (INR) of 1.5–2.5 before or concomitant with the administration of reversal agents. Reversal agents should be considered before endoscopy in patients with an INR >2.5 (Conditional recommendation, very-low-quality evidence).

Platelet transfusion should be considered to maintain a platelet count of 50×10/l in patients with severe bleeding and those requiring endoscopic hemostasis (Conditional recommendation, very-low-quality evidence).

Platelet and plasma transfusions should be considered in patients who receive massive red blood cell transfusions (Conditional recommendation, very-low-quality evidence).

In patients on anticoagulant agents, a multidisciplinary approach (e.g., hematology, cardiology, neurology, and gastroenterology) should be used when deciding whether to discontinue medications or use reversal agents to balance the risk of ongoing bleeding with the risk of thromboembolic events (Strong recommendation, very-low-quality evidence).

Colonoscopy

Colonoscopy as a Diagnostic Tool

Colonoscopy should be the initial diagnostic procedure for nearly all patients presenting with acute lower gastrointestinal bleeding (LGIB) (Strong recommendation, low-quality evidence).

The colonic mucosa should be carefully inspected during both colonoscope insertion and withdrawal, with aggressive attempts made to wash residual stool and blood in order to identify the bleeding site. The endoscopist should also intubate the terminal ileum to rule out proximal blood suggestive of a small bowel lesion (Conditional recommendation, very-low-quality evidence).

Bowel Preparation

Once the patient is hemodynamically stable, colonoscopy should be performed after adequate colon cleansing. Four to six liters of a polyethylene glycol (PEG)-based solution or the equivalent should be administered over 3 to 4 h until the rectal effluent is clear of blood and stool. Unprepped colonoscopy/sigmoidoscopy is not recommended (Strong recommendation, low-quality evidence).

A nasogastric tube can be considered to facilitate colon preparation in high-risk patients with ongoing bleeding who are intolerant to oral intake and are at low risk of aspiration (Conditional recommendation, low-quality evidence).

Timing of Colonoscopy

In patients with high-risk clinical features and signs or symptoms of ongoing bleeding, a rapid bowel purge should be initiated following hemodynamic resuscitation and a colonoscopy performed within 24 h of patient presentation after adequate colon preparation to potentially improve diagnostic and therapeutic yield (Conditional recommendation, low-quality evidence).

In patients without high-risk clinical features or serious comorbid disease or those with high-risk clinical features without signs or symptoms of ongoing bleeding, colonoscopy should be performed next available after a colon purge (Conditional recommendation, low-quality evidence).

Endoscopic Hemostasis Therapy

Endoscopic therapy should be provided to patients with high-risk endoscopic stigmata of bleeding: active bleeding (spurting and oozing); non-bleeding visible vessel; or adherent clot (Strong recommendation, low-quality evidence).

Diverticular bleeding: through-the-scope endoscopic clips are recommended as clips may be safer in

the colon than contact thermal therapy and are generally easier to perform than band ligation, particularly for right-sided colon lesions (Conditional recommendation, low-quality evidence).
Angioectasia bleeding: noncontact thermal therapy using argon plasma coagulation is recommended (Conditional recommendation, low-quality evidence).
Post-polypectomy bleeding: mechanical (clip) or contact thermal endotherapy, with or without the combined use of dilute epinephrine injection, is recommended (Strong recommendation, low-quality evidence).
Epinephrine injection therapy (1:10,000 or 1:20,000 dilution with saline) can be used to gain initial control of an active bleeding lesion and improve visualization but should be used in combination with a second hemostasis modality including mechanical or contact thermal therapy to achieve definitive hemostasis (Strong recommendation, very-low-quality evidence).

Role of Repeat Colonoscopy in the Setting of Early Recurrent Bleeding

Repeat colonoscopy, with endoscopic hemostasis if indicated, should be considered for patients with evidence of recurrent bleeding (Strong recommendation, very-low-quality evidence).

Non-colonoscopy Interventions

A surgical consultation should be requested in patients with high-risk clinical features and ongoing bleeding. In general, surgery for acute LGIB should be considered after other therapeutic options have failed and should take into consideration the extent and success of prior bleeding control measures, severity and source of bleeding, and the level of comorbid disease. It is important to very carefully localize the source of bleeding whenever possible before surgical resection to avoid continued or recurrent bleeding from an unresected culprit lesion (Conditional recommendation, very-low-quality evidence).
Radiographic interventions should be considered in patients with high-risk clinical features and ongoing bleeding who have a negative upper endoscopy and do not respond adequately to hemodynamic resuscitation efforts and are therefore unlikely to tolerate bowel preparation and urgent colonoscopy (Strong recommendation, very-low-quality evidence).
If a diagnostic test is desired for localization of the bleeding site before angiography, computed tomography (CT) angiography should be considered (Conditional recommendation, very-low-quality evidence).

Prevention of Recurrent Lower Gastrointestinal Bleeding

Non-aspirin non-steroidal anti-inflammatory drug (NSAID) use should be avoided in patients with a history of acute LGIB, particularly if secondary to diverticulosis or angioectasia (Strong recommendation, low-quality evidence).
In patients with established high-risk cardiovascular disease and a history of LGIB, aspirin used for secondary prevention should not be discontinued. Aspirin for primary prevention of cardiovascular events should be avoided in most patients with LGIB (Strong recommendation, low-quality evidence).
In patients on dual antiplatelet therapy or monotherapy with non-aspirin antiplatelet agents (thienopyridine), non-aspirin antiplatelet therapy should be resumed as soon as possible and at least within 7 days based on multidisciplinary assessment of cardiovascular and GI risk and the adequacy of endoscopic therapy (as above, aspirin use should not be discontinued). However, dual antiplatelet therapy should not be discontinued in patients with an acute coronary syndrome within the past 90 days or coronary stenting within the past 30 days (Strong recommendation, low-quality evidence).

Definitions

The Grading of Recommendations Assessment, Development, and Evaluation (GRADE) system was used to evaluate the quality of evidence and strength of recommendation.

Quality of Evidence

High: Further research is very unlikely to change confidence in the estimate of effect.

Moderate: Further research is likely to have an important impact on confidence in the estimate of effect and may change the estimate.

Low: Further research is very likely to have an important impact on confidence in the estimate of effect and is likely to change the estimate.

Very Low: Any estimate of effect is very uncertain.

Strength of Recommendations

Strong: The desirable effects of an intervention clearly outweigh the undesirable effects or clearly do not.

Conditional: The tradeoffs are less certain between the desirable and undesirable effects of an intervention.

Clinical Algorithm(s)

An algorithm titled "Algorithm for the management of patients presenting with acute LGIB stratified by bleeding severity" is provided in the original guideline document.

Scope

Disease/Condition(s)

Acute overt lower gastrointestinal bleeding (LGIB)

Note: For the purposes of this guideline, LGIB is defined as the onset of hematochezia originating from either the colon or the rectum.

Guideline Category

Evaluation

Management

Prevention

Risk Assessment

Treatment

Clinical Specialty

Colon and Rectal Surgery

Gastroenterology

Hematology

Internal Medicine

Intended Users

Physicians

Guideline Objective(s)

To provide recommendations for the management of patients with acute overt lower gastrointestinal bleeding (LGIB)

Target Population

Patients with acute overt lower gastrointestinal bleeding (LGIB)

Interventions and Practices Considered

Initial Assessment

Assessment of hemodynamic status

- Focused history, physical examination, and laboratory evaluation
- Upper endoscopy
- Risk assessment and stratification

Management/Treatment

- Hemodynamic resuscitation (performed simultaneously with initial assessment)
  - Intravenous fluid resuscitation
  - Red blood cell (RBC) transfusion
- Management of coagulation defects
  - Endoscopic hemostasis
  - Platelet and plasma transfusion
  - Use of multidisciplinary approach
- Colonoscopy
  - Performed within 24 hours of presentation, following bowel preparation, for high-risk patients and at next available for low-risk patients
  - Endoscopic hemostasis therapy (mechanical, thermal, injection, or combination)
  - Repeat colonoscopy (as indicated)
- Non-colonoscopy interventions
  - Surgical consultation
  - Radiographic interventions (i.e., tagged red blood cell scintigraphy, computed tomographic angiography, angiography)
  - Computed tomography (CT) angiography

Prevention

- Non-steroidal anti-inflammatory drugs (NSAIDs) (not recommended)
- Aspirin (as indicated)
- Non-aspirin antiplatelet therapy

Major Outcomes Considered

- Incidence and severity of complications
- Rebleeding or ongoing bleeding
- Need for treatment
- Adverse events
- Morbidity
- Mortality

Methodology

Methods Used to Collect/Select the Evidence

Hand-searches of Published Literature (Primary Sources)

Hand-searches of Published Literature (Secondary Sources)

Searches of Electronic Databases

Description of Methods Used to Collect/Select the Evidence

With the assistance of a health sciences librarian, a systematic search of the literature was conducted covering the years 1 January 1968 through 2 March 2015 in the PubMed and EMBASE databases and the Cochrane Library including the Cochrane Database of Systematic Reviews, the Database of Abstracts of Reviews of Effect, and Cochrane Central Register of Controlled Trials (CENTRAL). The PubMed search used a combination of Medical Subject Headings (MeSH), as well as terms appearing in titles and abstracts. The final group was limited to English language and human studies. Citations dealing with children and prostatic neoplasms were excluded. Refer to the original guideline document for the search strategy used to cover the lower gastrointestinal tract.

Search strategies in EMBASE and the Cochrane Library databases replicated the terms, limits, and features used in the PubMed search strategy.

In addition to the literature search, the authors reviewed the references of identified articles for additional studies. The authors also performed targeted searches on topics for which there is relevant literature for upper gastrointestinal bleeding (UGIB) but not lower gastrointestinal bleeding (LGIB) including hemodynamic resuscitation/blood product transfusions and management of anticoagulant and antiplatelet medications.

Number of Source Documents

A total of 2,576 studies were identified, and 133 studies were included in the evidence base.

Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Given)

Rating Scheme for the Strength of the Evidence

Quality of Evidence

High: Further research is very unlikely to change confidence in the estimate of effect.

Moderate: Further research is likely to have an important impact on confidence in the estimate of effect and may change the estimate.

Low: Further research is very likely to have an important impact on confidence in the estimate of effect and is likely to change the estimate.

Very Low: Any estimate of effect is very uncertain.

Methods Used to Analyze the Evidence

Review of Published Meta-Analyses

Systematic Review with Evidence Tables

Description of the Methods Used to Analyze the Evidence

The GRADE (Grading of Recommendations Assessment, Development and Evaluation) system was used to grade the quality of evidence. See the "Rating Scheme for the Strength of the Evidence" field.

In the GRADE system, randomized trials are considered high-quality evidence but can be downrated depending on the size, quality, and consistency of studies. Observational studies are generally rated as low-quality studies.

Methods Used to Formulate the Recommendations

Expert Consensus (Nominal Group Technique)

Description of Methods Used to Formulate the Recommendations

The GRADE system was used to rate the strength of each recommendation. See the "Rating Scheme for the Strength of the Recommendations" field.

The strength of a recommendation is graded as strong when the desirable effects of an intervention clearly outweigh the undesirable effects and is graded as conditional when uncertainty exists about the trade-offs. Other factors affecting the strength of recommendation include variability in values and preferences of patients and whether an intervention represents a wise use of resources.

Rating Scheme for the Strength of the Recommendations

Strength of Recommendations

Strong: The desirable effects of an intervention clearly outweigh the undesirable effects or clearly do not.

Conditional: The tradeoffs are less certain between the desirable and undesirable effects of an intervention.

Cost Analysis

A formal cost analysis was not performed and published analyses were not reviewed.

Method of Guideline Validation

Internal Peer Review

Description of Method of Guideline Validation

The American College of Gastroenterology created a special guideline review process, involving members of the Board of Trustees, Practice Parameters Committee and the *American Journal of Gastroenterology*. It is their goal to review the guideline, allow the Practice Parameters Committee to revise the guideline, and re-review the guideline within 6 months of first submission. Therefore the entire process should take 1 year from commission to finished, accepted guideline.

Evidence Supporting the Recommendations

Type of Evidence Supporting the Recommendations

The type of supporting evidence is identified and graded for each recommendation (see the "Major Recommendations" field).

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

Appropriate management of patients with acute lower gastrointestinal bleeding (LGIB)

Refer to the "Summary of Evidence" sections of the original guideline documentation for benefits associated with specific interventions.

Potential Harms

- Large observational studies and a meta-analysis of three small trials of upper gastrointestinal bleeding (UGIB) suggest that blood transfusion compared with no transfusion is associated with an increased risk of rebleeding and possibly death.
- Complications of colon preparation with polyethylene glycol are rare but include aspiration pneumonia, as well as fluid and electrolyte abnormalities.
- The risk of early rebleeding in the setting of antiplatelet or anticoagulant use may be higher with thermal contact hemostasis methods than with mechanical methods (clips). In a pooled analysis by no early rebleeding was reported after endoscopic clipping of diverticular bleeding; however, late rebleeding occurred in 17%.
- When performing computed tomography (CT) angiography, standard precautions should be taken to avoid contrast-induced nephropathy, particularly as patients may undergo subsequent angiography with administration of arterial contrast. Because angiography relies on active bleeding and has the potential for serious complications, it should be reserved for patients with very brisk, ongoing bleeding.
- Caution should be exercised when contemplating using band ligation for a right side colonic diverticular bleed. *Ex vivo* colon specimen data have demonstrated serosal entrapment and inclusion of the muscularis propia post band ligation in the right colon.

Refer to the "Summary of Evidence" sections of the original guideline documentation for harms associated with specific interventions.

Contraindications

Contraindications

Non-aspirin nonsteroidal anti-inflammatory drugs (NSAID) use should be avoided in patients with a history of acute lower gastrointestinal bleeding (LGIB) particularly if secondary to diverticulosis or angioectasia.

Implementation of the Guideline

Description of Implementation Strategy

An implementation strategy was not provided.

Implementation Tools

Clinical Algorithm

For information about availability, see the *Availability of Companion Documents* and *Patient Resources* fields below.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Getting Better

IOM Domain

Effectiveness

Identifying Information and Availability

Bibliographic Source(s)

Strate LL, Gralnek IM. ACG clinical guideline: management of patients with acute lower gastrointestinal bleeding. Am J Gastroenterol. 2016 Apr;111(4):459-74. [140 references] PubMed

Adaptation

This guideline was not adapted from another source.

Date Released

2016 Apr

Guideline Developer(s)

American College of Gastroenterology - Medical Specialty Society

Source(s) of Funding

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Guideline Committee

Not stated

Composition of Group That Authored the Guideline

Authors: Lisa L. Strate, MD, MPH, FACG; Ian M. Gralnek, MD, MSHS

Financial Disclosures/Conflicts of Interest

Potential Competing Interests: Ian M. Gralnek has served as a consultant for EndoChoice, Motus GI, and EndoAid GI View, and is a member of the Data Safety Monitoring Board for Intec Pharma. Lisa L. Strate declares no conflict of interest.

Guideline Status

This is the current release of the guideline.

This guideline meets NGC's 2013 (revised) inclusion criteria.

Guideline Availability

Available from the American College of Gastroenterology (ACG) Web site .

Availability of Companion Documents

The following is available:

American College of Gastroenterology Practice Parameters Committee. Guideline development policies. [internet]. Bethesda (MD): American College of Gastroenterology; 2010 Jan. Available from the American College of Gastroenterology (ACG) Web site .

Patient Resources

None available

NGC Status

This NGC summary was completed by ECRI Institute on July 31, 2017. The information was verified by the guideline developer on August 16, 2017.

This NEATS assessment was completed by ECRI Institute on August 3, 2017. The information was verified by the guideline developer on August 16, 2017.

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